



Paul F. Neils  
T (202) 663-7367  
pneils@sughrue.com

February 22, 2002

## BOX PCT

Commissioner for Patents  
Washington, D.C. 20231

PCT/FR00/02387  
-filed August 28, 2000

Re: Application of **Alain EVRARD**  
**ROTARY DRAWING/BLOW-MOLDING MACHINE HAVING A**  
**MAGNETIC CONTROL OF THE DRAWING ROD**  
Assignee: **SIDEL**  
Our Ref: **Q68430**

Dear Sir:

The following documents and fees are submitted herewith in connection with the above application for the purpose of entering the National stage under 35 U.S.C. § 371 and in accordance with Chapter II of the Patent Cooperation Treaty:

- ☐ an executed Declaration and Power of Attorney.
- ☒ an English translation of the International Application.
- ☒ 4 sheets of drawings.
- ☐ an English translation of Article 19 claim amendments.
- ☐ an English translation of Article 34 amendments (annexes to the IPER).
- ☐ an executed Assignment and PTO 1595 form.
- ☒ a Form PTO-1449 listing the ISR and a copy of the ISR.
- ☒ a Preliminary Amendment

The Declaration and Power of Attorney and Assignment documents will be submitted at a later date.

It is assumed that copies of the International Application, the International Search Report, the International Preliminary Examination Report, and any Articles 19 and 34 amendments as required by § 371(c) will be supplied directly by the International Bureau, but if further copies are needed, the undersigned can easily provide them upon request.

JC20 Rec'd PCT/PTO 22 FEB 2002

10/069147

1000 Pennsylvania Avenue, NW  
Washington, DC 20037-3213

T 202.293.7060  
F 202.293.7860

www.sughrue.com



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February 22, 2002

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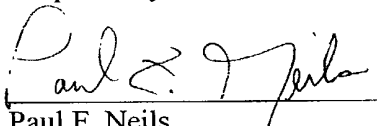
Total claims	<u>8</u>	-	20	=		x	\$18.00	=	\$0.00
Independent claims	<u>1</u>	-	3	=		x	\$84.00	=	\$0.00
Base Fee									\$890.00
<b>TOTAL FEE</b>									<u>\$890.00</u>

A check for the statutory filing fee of \$890.00 is attached. You are also directed and authorized to charge or credit any difference or overpayment to Deposit Account No. 19-4880. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16, 1.17 and 1.492 which may be required during the entire pendency of the application to Deposit Account No. 19-4880. A duplicate copy of this transmittal letter is attached.

Priority is claimed from:

<u>Country</u>	<u>Application No</u>	<u>Filing Date</u>
France	99/11150	September 3, 1999

Respectfully submitted,



Paul F. Neils

Registration No. 33,102

SUGHRUE MION, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, D.C. 20037-3213  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

Date: February 22, 2002

Attorney Docket No.: Q68430

**PATENT APPLICATION**  
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of

**PCT/FR00/02387**

Alain EVRARD

Appln. No.: Not Yet Assigned

Confirmation No.: Unknown

Group Art Unit: Not Yet Assigned

Filed: February 22, 2002

Examiner: Not Yet Assigned

For: ROTARY DRAWING/BLOW-MOLDING MACHINE HAVING A MAGNETIC  
CONTROL OF THE DRAWING ROD

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

**IN THE CLAIMS:**

**Please enter the following amended claims:**

4. (Amended) Machine according to claim 1, characterized in that the guide is separated  
in several sections.

5. (Amended) Machine according to claim 1, characterized in that the machine has two  
paired guides (36, 38) (40, 42) that are placed side-by-side, the slide (24) moving between the  
two paired guides.

PRELIMINARY AMENDMENT  
National Stage of PCT/FR00/02387

6. (Amended) Machine according to claim 1, characterized in that at least one of the magnetic blocks is made in the form of a permanent magnet.

8. (Amended) Machine according to claim 1, characterized in that the slide (24) is held in one extreme axial position by a magnetic means (48, 50) integral with the carrousel (28, 14).

**IN THE ABSTRACT:**

**Please add an Abstract of the Disclosure as follows.**

A machine for making thermoplastic containers by stretching and blowing a preform, comprising several molding stations mounted on a rotary carrousel, each station being provided with at least a stretch rod whereof the sliding movement is controlled along an axis (An). The stretch rod is controlled by a magnetic device having at least a fixed magnetic guide arranged about the axis of the carrousel and a slide which is integral with the stretch rod and bears at least a magnetic shoe and the shoe and the guide co-operate by magnetic coupling such that the guide imposes a predetermined axial movement on the slide.

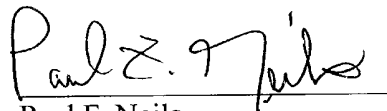
PRELIMINARY AMENDMENT  
National Stage of PCT/FR00/02387

REMARKS

The foregoing amendments are made in order to remove multiple dependencies and avoid the Government surcharge, as well as make editorial changes to conform with U.S. Practice. The changes have not been made for reasons related to patentability.

Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,



Paul F. Neils

Registration No. 33,102

SUGHRUE MION, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, D.C. 20037-3213  
Telephone: (202) 293-7060  
Facsimile: (202) 293-7860

Date: February 22, 2002

Attorney Docket No.: Q68430

PRELIMINARY AMENDMENT  
National Stage of PCT/FR00/02387

**APPENDIX**

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

**The claims are amended as follows:**

4. (Amended) Machine according to [any of the preceding claims] claim 1,  
characterized in that the guide is separated in several sections.
5. (Amended) Machine according to [any of the preceding claims] claim 1,  
characterized in that the machine has two paired guides (36, 38) (40, 42) that are placed side-by-side, the slide (24) moving between the two paired guides.
6. (Amended) Machine according to [any of the preceding claims] claim 1,  
characterized in that at least one of the magnetic blocks is made in the form of a permanent magnet.
8. (Amended) Machine according to [any of the preceding claims] claim 1,  
characterized in that the slide (24) is held in one extreme axial position by a magnetic means (48, 50) integral with the carrousel (28, 14).

PRELIMINARY AMENDMENT  
National Stage of PCT/FR00/02387

**IN THE ABSTRACT OF DISCLOSURE:**

**The abstract is added as follows:**

A machine for making thermoplastic containers by stretching and blowing a preform, comprising several molding stations mounted on a rotary carrousel, each station being provided with at least a stretch rod whereof the sliding movement is controlled along an axis (An). The stretch rod is controlled by a magnetic device having at least a fixed magnetic guide arranged about the axis of the carrousel and a slide which is integral with the stretch rod and bears at least a magnetic shoe and the shoe and the guide co-operate by magnetic coupling such that the guide imposes a predetermined axial movement on the slide.

Rotary drawing/blow-molding machine having a  
magnetic control of the drawing rod.

The invention concerns machines for manufacturing containers of thermoplastic material by drawing  
5 and blow-molding a preform that has previously been produced by injection molding.

Such machines are used in particular to manufacture containers, for example polyethylene  
terephthalate (PET) bottles.

A machine of this type uses preforms that are appreciably tubular, closed at one of their axial ends,  
the other axial end being open and already in the definitive shape of the neck of the final container.

10 Each preform is heated in a thermal conditioning oven so as to bring the preform to a higher  
temperature than the glass transition temperature of the thermoplastic material. The conditioned preform  
is transferred to a blow mold in which a cavity is delimited in the shape of the container to be obtained.  
The preform is placed in the mold so that its open end extends outside the mold. Thus, a blow-molding  
device can be brought to the neck of the preform in order to inject air under pressure into the preform.  
15 Simultaneously, a drawing rod is inserted axially into the preform until it comes to rest against the closed  
end at the bottom of the preform. The drawing rod also allows better control of the preform's axial  
deformation during the blow-molding of the container.

One of the important parameters for the proper operation of such a blow-molding process is good  
control of the speed of movement of the drawing rod and the perfect synchronization of this movement  
20 with the triggering of the blow-molding.

The invention is more particularly intended to be used in a rotary type drawing/blow-molding  
machine in which the machine has several blow-molding stations mounted on the periphery of a carousel  
that is continuously driven in rotation around its axis. Each blow-molding station has one blow mold, a  
blow-molding device and a drawing device.



According to one known design, the movement of the drawing rod is controlled by a pneumatic cylinder that furnishes the energy required to move the rod; but the rod's speed is regulated by a cam roller device that allows the axial position of the drawing rod to be perfectly synchronized based on the angular position of the particular blow-molding station around the axis of rotation of the carrousel.

5        These systems are entirely satisfactory in terms of operation of the blow-molding process. However, there is a need to greatly reduce the consumption of pressurized fluid of these blow-molding machines. One of the sources of consumption of previously-known machines is comprised of cylinders to control the drawing rod of each blow-molding station.

10        A purpose of the invention, therefore, is to propose a particularly simple and effective method of controlling the movements of the drawing rod without having to use a pressurized fluid, and without sacrificing the control of the triggering point and of the speed of movement of the rod.

15        To that end, the invention proposes a machine for manufacturing containers made of thermoplastic material by drawing and blow-molding a preform that has previously been produced by injection, of the type having several blow-molding stations that are mounted on a carrousel driven in continuous rotation around its axis with respect to a frame of the machine, and of the type in which each station is equipped with at least one drawing rod that is slidably controlled along its axis in order to draw the preform during the blow-molding operation, characterized in that the drawing rod is controlled by a magnetic device comprising a fixed magnetic guide placed around the axis of rotation of the carrousel and a slide that is integral with the drawing rod and which carries a magnetic block, and in that the block and the guide  
20        cooperate by magnetic coupling so that, depending on the angular position of the carrousel, the guide imposes a specific axial displacement on the slide.

According to other characteristics of the invention:

- the magnetic coupling is accomplished with no contact;
- the block and the guide cooperate opposite each other along a direction perpendicular to the axial  
25        direction of movement of the slide;

- the guide is separated in several sections;
- the machine has two paired guides that are placed side by side, the slide moving between the two paired guides;
- at least one of the magnetic blocks is made in the form of a permanent magnet;
- 5     • the slide has at least a first permanent magnet (32) that cooperates with a guide to control the slide in the direction of a first axial movement, and at least one second permanent magnet to control the slide in the opposite direction; and
- the slide is held in one extreme axial position by a magnetic means integral with the carrousel.

Other characteristics and advantages of the invention will appear from the following detailed  
10 description, as well as in the appended drawings in which:

- Figure 1 is a diagrammatic view in axial cross section of a part of a rotary machine according to the invention;
- Figure 2 is a diagrammatic exploded view in perspective of the upper part of the machine of Figure 1;
- 15     • Figure 3 is a partial view in axial cross section along line B-B of Figure 4 illustrating more particularly the means of controlling the movements of the drawing rods;
- Figure 4 is a cross sectional view along line A-A for Figure 3;
- Figure 5 is a cross sectional view along line C-C of Figure 4.

Represented in the Figures, diagrammatically and partially, is a machine for manufacturing  
20 containers of thermoplastic material by drawing and blow-molding a preform 10 that was previously produced by injection molding.

More particularly, this machine is of the rotary type, that is, it has several drawing/blow-molding stations 12 mounted on a carrousel 14. The carrousel 14 is driven in continuous rotation around its axis A1.

25     Each drawing/blow-molding station 12 essentially has a blow mold 16, a blow nozzle 18, a drawing rod 20 and means for controlling 22 the movements of the drawing rod 20.

In the illustrated example, the axis A1 of rotation of the carrousel 14 is a vertical axis and each drawing station 12 is placed along a vertical axis An,

the axes  $A_n$  being arranged at 90 degrees from each other in a circle around the axis  $A_1$ . The preforms 10 are blown with their open end turned upward so that the blow nozzle 18 and the drawing rod 20 are placed above the mold 16. This arrangement gives rise to the notions of up and down that will be used in the following text, but that should not be interpreted as limitations to the scope of the invention.

5 As a result of this arrangement, the drawing rod 20 of each station 12 is therefore moved vertically along the respective axis  $A_n$  between an upper position and a lower position. More precisely, because each blow-molding station proceeds with the blow-molding of a container with each turn of the carrousel 14, the rods 20 make a round-trip between their upper and lower positions with each turn of the carrousel 14.

10 In a known way, the rods 20 are attached at their upper end to a slide 24 that can slide vertically on a rail 26 mounted on a frame support 28 integral with the carrousel 14. The frame support 28 is in the shape of an inverted U and is composed of two vertical members joined at the top by a cross piece. The frame support 28 extends in a plane perpendicular to a radius of the carrousel and the guide rail 26 of the slide is attached to one of the vertical members of the frame support so that the slide is received between the two  
15 vertical members.

The rod 20 extends downward through an orifice made in an upper plate 30 of the carrousel on which the frame supports 28 corresponding to the different blow-molding units are attached. Moreover, in a known way, each rod 20 extends axially through the respective blow nozzle 18 so that its lower end can engage axially in a preform held in a cavity of the mold 16.

20 According to the invention, the control means 22 that cause the movement of the drawing rods 20 during rotation of the carrousel 14 involve magnetic means.

Thus, each slide carries at least one magnet that is intended to cooperate remotely with the guides made of magnetic material that are arranged on the periphery of the carrousel and which are integral with a fixed frame of the machine. The guides thus extend along the spiral arcs of axis  $A_1$ .

In the example illustrated, each slide 24 has two pairs 32, 34 of magnets.

A first pair of magnets 32 is provided to ensure the lifting of the rod 20 toward its top position. One of this pair of lifting magnets 32 is placed on one face of the slide 24 that is turned radially outward. It is provided to cooperate with an outer guide 36 that is placed outside the path of the frame supports 28. The second of these lifting magnets 32 is turned radially inward and it cooperates with an inner guide 38 placed inside the path of the frame supports. The two guides, inner and outer, that provide for the lifting of the slide are arranged parallel to each other and are separated by a space between them that allows the frame supports 28 and the slides 24 to pass.

In the same way, each slide 24 has two inner and outer lowering magnets 34 that cooperate with the parallel inner 40 and outer 42 lowering guides.

In the example illustrated, the lifting magnets 32 are placed on the slide 24 below the lowering magnets 34.

The guides 36, 38, 40, 42 are, for example, borne by forks 44 in inverted U-shape that are hooked by their upper part below an upper plate 46 of the frame of the machine. Obviously, the separation of the two parts of each fork 44 is such as to allow the passage of the frame supports 28.

In addition, the control means 22 have upper and lower stops that can hold each slide 24, and thus the rods 20, in the upper and lower position. In the example proposed, each frame support 28 thus has one upper magnetic stop 48 and one lower magnetic stop 50 against which the slide can be held in the upper and lower position, respectively.

The lifting guides 36, 38 thus are placed on the frame of the machine so that their upstream end, with respect to the direction of rotation of the carrousel 14, is situated vertically at the height of the lifting magnets 32 of the slides 24 when the slides are in the lower position. Their downstream end is situated at the height of the lifting magnets 32 when the slides are in the upper position. Between the two, the guides can follow a regular descent, as

illustrated in Figure 5, or they can follow a variable slope in order to obtain a particular variation in speed of the drawing rods.

In the opposite direction, the two lowering guides 40, 42 follow a slope between the upper and lower positions of the lowering magnets 34.

5        Thus, during the rotation of the carrousel 14, when one of the magnets of a slide 24 arrives opposite the upstream end of the respective guide, the magnetic flux of this magnet is looped back on the guide so that it exerts a large force of attraction between the guide and the magnet. Also, starting with this moment of "engagement," the variation in height of the guide results in an effort exerted by the magnet on the slide in a direction such that the slide follows the path of the guide. In effect, the slide is released from its  
10    initial stopped position and is taken during the rotation of the carrousel to its other stopped position. By selecting sufficiently-powerful magnets and using good geometry in the parts, very good precision is obtained in vertically guiding the slide along its path. Indeed, the force of attraction between the magnet and the respective guide is such that, for a given angular position of the carrousel, it allows nearly no shift between the vertical position of the slide 24 and that of the guide.

15        The invention thus achieves a particularly simple and reliable control of the movements of the drawing rods. These magnetic means are advantageous because, compared to pneumatic cylinders, they make it possible to avoid any consumption of compressed air. Because they operate without contact, they are not subject to wear. Moreover, they are particularly simple to adjust. To adapt the machine to a new container format, for example, only the upper and lower stop positions of the slide 24 will have to be  
20    changed. As a variation, sets of guides could be provided that are adapted to the drawing travel of the rods  
20.

In the example illustrated, it was decided to use two lifting magnets and two lowering magnets for each blow-molding station, resulting in the need for two paired lifting guides and two paired lowering guides. However, in certain applications, a single lifting magnet and a single lowering magnet would be  
25    sufficient, which would also make it possible to reduce the number of guides.

Moreover, while it was decided in the example illustrated to distinguish the lowering magnets from the lifting magnets, it is also possible for the same magnet to perform both functions.

Of course, other variations of the invention are still possible. The lifting and lowering magnets, which here are in the form of permanent magnets, could be replaced by electromagnets. This is also true  
5 for the upper and lower magnetic stops.

In addition, the invention can also be implemented in machines where the blow molds have several cavities to allow the blow-molding of several containers simultaneously. In this case, the slide of each drawing/blow-molding station will carry several drawing rods.

CLAIMS

1. Machine for manufacturing containers made of thermoplastic material by drawing and blow-molding a preform (10), of the type having several blow-molding stations (12) that are mounted on a  
5 carrousel (14) driven in continuous rotation around its axis (A1) with respect to a frame (46) of the machine, and of the type in which each station (12) is equipped with at least one drawing rod (20) that is slidably controlled along its axis (An) in order to draw the preform (10) during the blow-molding operation,

characterized in that the drawing rod (20) is controlled by a magnetic device comprising at least one  
10 fixed magnetic guide (36, 38, 40, 42) placed around the axis of rotation (A1) of the carrousel (14) and a slide (24) that is integral with the drawing rod (20) and which carries at least one magnetic block (32, 34), and in that the block and the guide cooperate by magnetic coupling so that, depending on the angular position of the carrousel (14), the guide imposes a specific axial displacement on the slide (24).

15 2. Machine according to claim 1, characterized in that the magnetic coupling is accomplished with no contact.

3. Machine according to claim 2, characterized in that the block (32, 34) and the guide (36, 38, 40, 42) cooperate opposite each other along a direction perpendicular to the axial direction (An) of movement  
20 of the slide (24).

4. Machine according to any of the preceding claims, characterized in that the guide is separated in several sections.

25 5. Machine according to any of the preceding claims, characterized in that the machine has two paired guides (36, 38) (40, 42) that are placed side-by-side, the slide (24) moving between the two paired guides.

6. Machine according to any of the preceding claims, characterized in that at least one of the magnetic blocks is made in the form of a permanent magnet.

5 7. Machine according to claim 6, characterized in that the slide (24) has at least one first permanent magnet (32) that cooperates with a guide (36, 38) to control the slide (24) in the direction of a first axial movement, and at least one second permanent magnet (34) to control the slide in the opposite direction.

8. Machine according to any of the preceding claims, characterized in that the slide (24) is held in one extreme axial position by a magnetic means (48, 50) integral with the carrousel (28, 14).



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Bureau international



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15 mars 2001 (15.03.2001)

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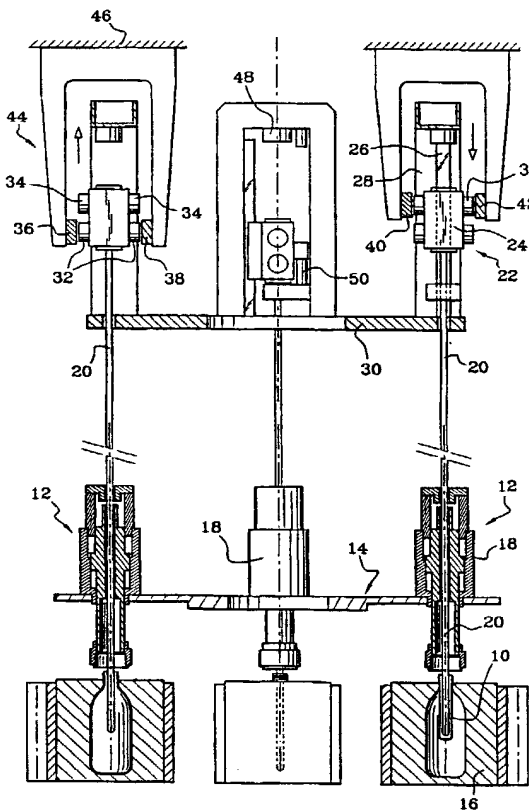
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- (21) Numéro de la demande internationale: PCT/FR00/02387 (72) Inventeur; et (75) Inventeur/Déposant (*pour US seulement*): EVRARD, Alain [FR/FR]; Sidel, Boîte Postale 204, F-76053 Le Havre Cedex (FR).
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[Suite sur la page suivante]

(54) Title: ROTARY STRETCH BLOW MOULDING MACHINE COMPRISING A MAGNETICALLY CONTROLLED STRETCH ROD

(54) Titre: MACHINE ROTATIVE D'ETIRAGE-SOUFFLAGE COMPORTANT UNE COMMANDE MAGNETIQUE DE LA TIGE D'ETIRAGE



(57) Abstract: The invention concerns a machine for making thermoplastic containers by stretching and blowing a preform (10), comprising several moulding stations (12) mounted on a rotary carousel (14), each station (12) being provided with at least a stretch rod (20) whereof the sliding movement is controlled along an axis (A<sub>n</sub>). The invention is characterised in that the stretch rod is controlled by a magnetic device comprising at least a fixed magnetic guide (36, 38, 40, 42) arranged about the axis (A<sub>1</sub>) of the carousel (14) and a slide (24) which is integral with the stretch rod (20) and bears at least a magnetic shoe (32, 34) and the shoe and the guide co-operate by magnetic coupling such that the guide imposes a predetermined axial movement on the slide (24)

(57) Abrégé: L'invention concerne une machine de fabrication de récipients en matière thermoplastique par étirage et soufflage d'une préforme (10), du type comportant plusieurs postes de moulage (12) qui sont montés sur un carrousel rotatif (14), chaque poste (12) étant muni d'au moins une tige d'étirage (20) qui est commandée en coulissement selon son axe (A<sub>n</sub>), caractérisée en ce que la tige d'étirage (20) est commandée par un dispositif magnétique comprenant au moins un guide magnétique fixe (36, 38, 40, 42) agencé autour de l'axe (A<sub>1</sub>) du carrousel (14) et un coulisseau (24) qui est solidaire de la tige d'étirage (20) et qui porte au moins un patin magnétique (32, 34), et en ce que le patin et le guide coopèrent par couplage magnétique pour que le guide impose au coulisseau (24) un déplacement axial déterminé.

WO 01/17752 A1

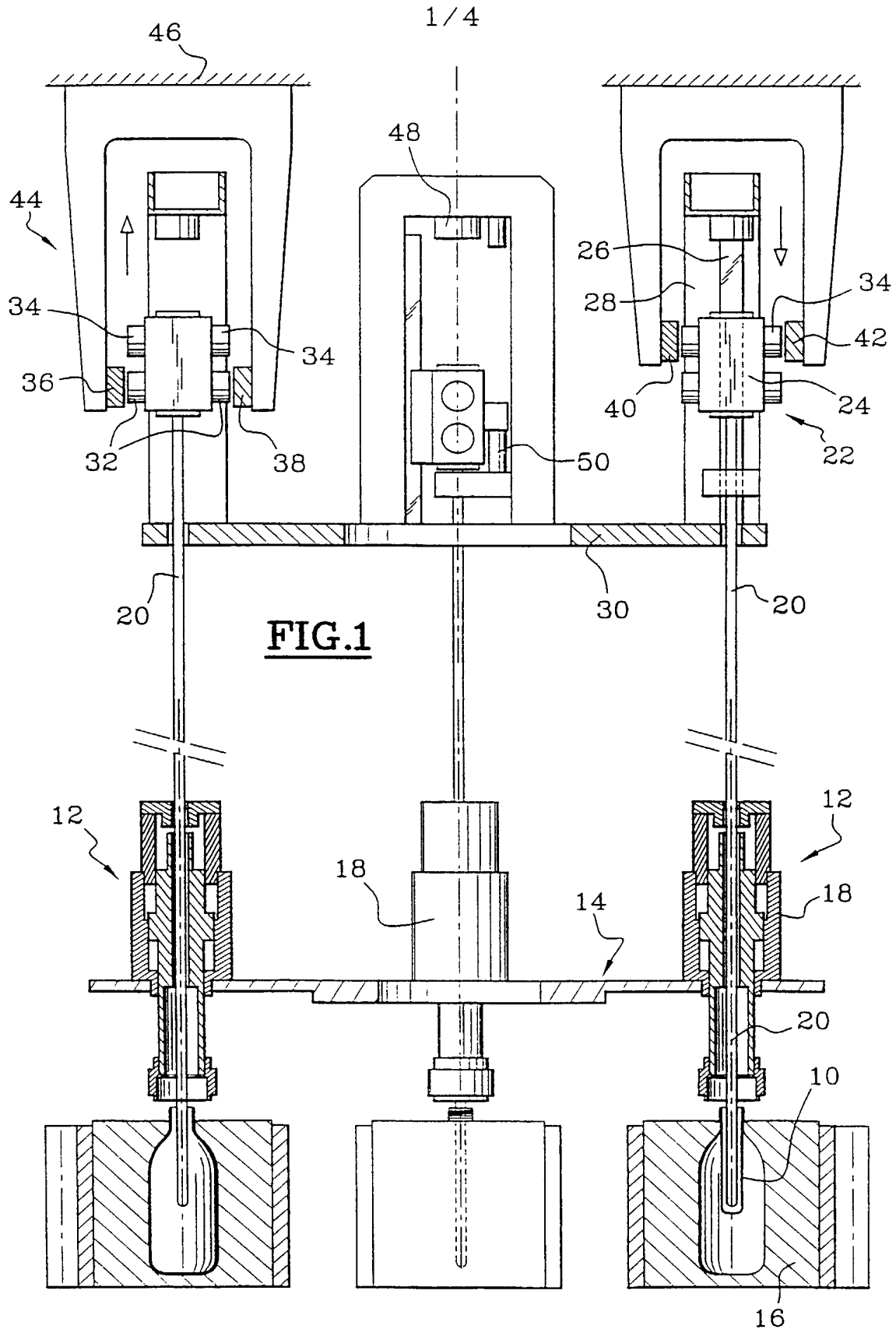
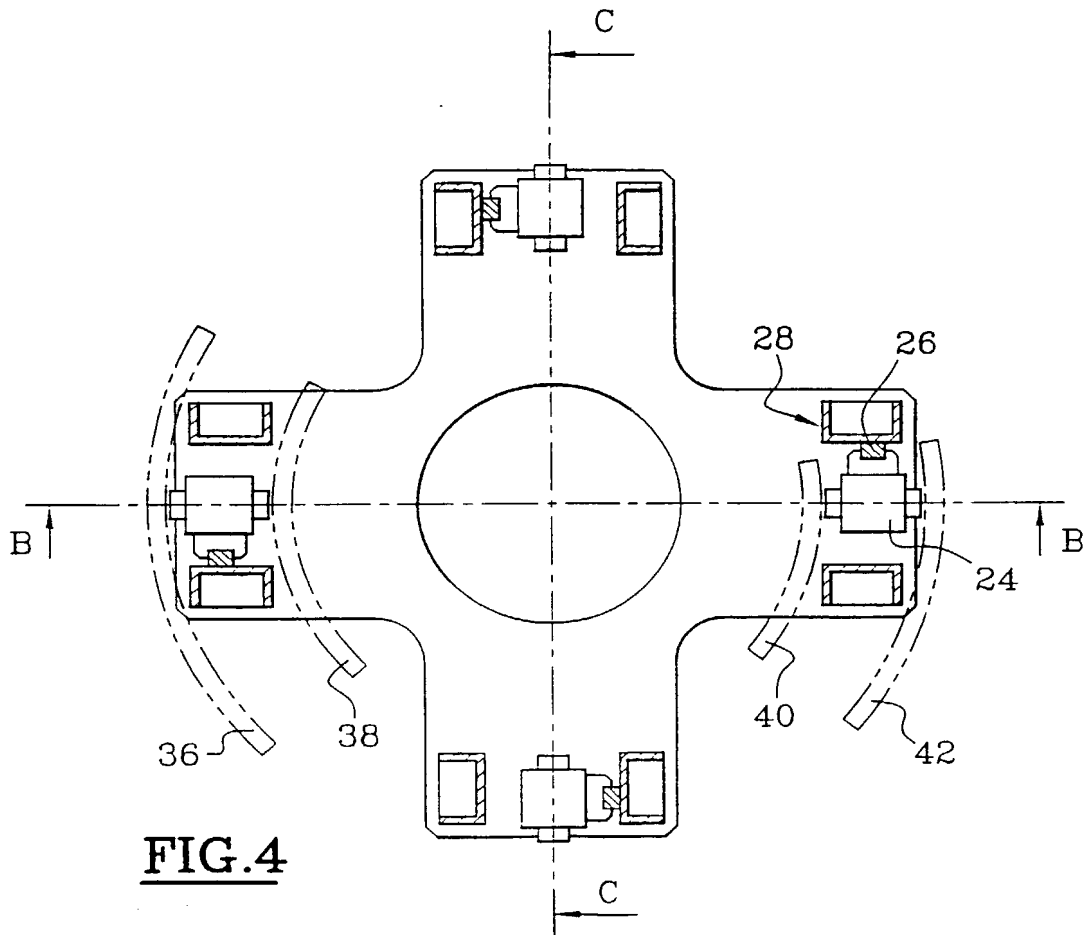
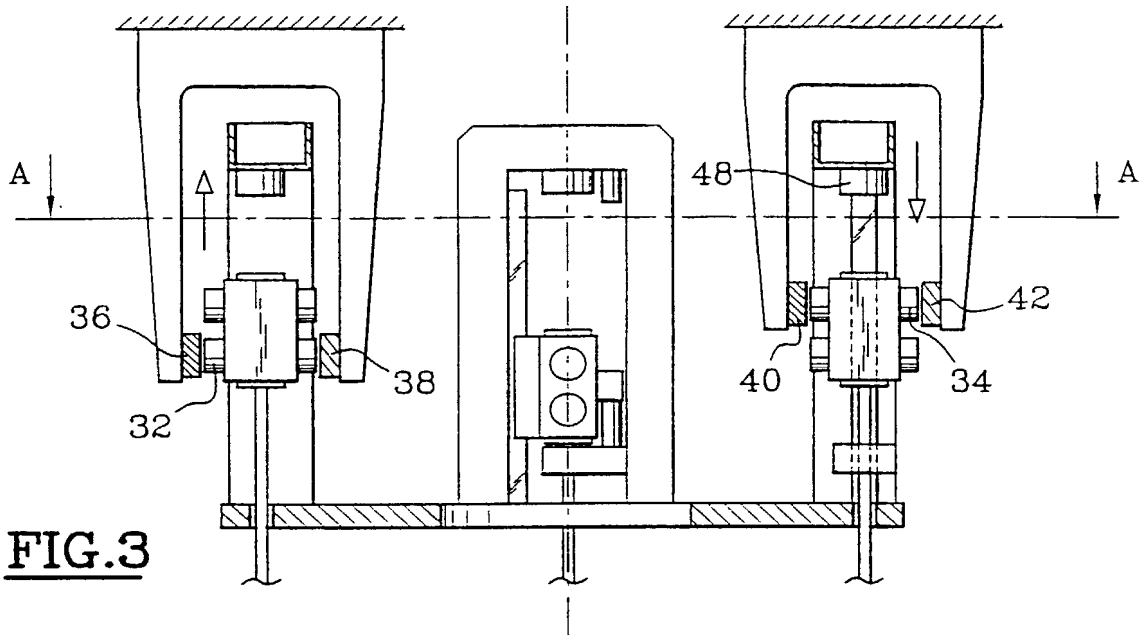


FIG.2

3 / 4



4 / 4

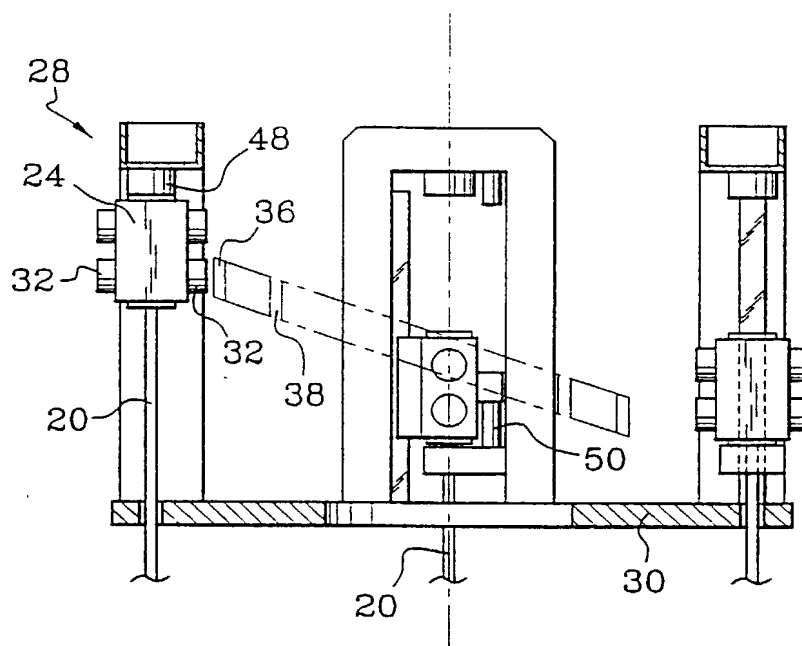


FIG. 5

# Declaration and Power of Attorney for Patent Application

## Déclaration et pouvoirs pour demande de brevet

### French Language Declaration

En tant que l'inventeur nommé ci-après, je déclare par le présent acte que :

Mon domicile, mon adresse postale et ma nationalité sont ceux figurant ci-dessous à côté de mon nom.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée

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et dont la description est fournie ci-joint à moins que la case suivante n'ait été cochée :

- ☐ a été déposée le \_\_\_\_\_  
sous le numéro de demande des Etats-Unis ou le numéro  
de demande international PCT  
\_\_\_\_\_ (n° de confirmation \_\_\_\_\_)  
et modifiée le \_\_\_\_\_  
\_\_\_\_\_ (le cas échéant).

Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises, telles que modifiées par toute modification dont il aura été fait référence ci-dessus.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations.

As a below named inventor, I hereby declare that:

My residence, mailing address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

ROTARY DRAWING/BLOW-MOLDING MACHINE

HAVING A MAGNETIC CONTROL OF THE DRAWING

ROD

the specification of which is attached hereto unless the following box is checked:

- ☒ was filed on August 28, 2000 ✓  
as United States Application Number or PCT  
International Application Number  
PCT/FR00/02387 (Conf. No. Unknown)  
and was amended on \_\_\_\_\_  
\_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

$$= \frac{1}{\pi} \left( \frac{\partial^2 f}{\partial x^2} + \frac{\partial^2 f}{\partial y^2} \right) = \frac{1}{\pi} \left( \frac{\partial^2 f}{\partial x^2} + \frac{\partial^2 f}{\partial y^2} \right)$$

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

## French Language Declaration

POUVOIRS : je désigne par les présentes tous avocats de SUGHRUE MION, PLLC énumérés sous le Numéro de Client USPTO figurant ci-après comme mes avocats pour poursuivre la présente procédure et traiter avec l'Office des brevets et des marques (*Patent and Trademark Office*) toute affaire en liaison avec celle-ci, reconnaissant formellement que les avocats spécifiques énumérés sous ce Numéro de Client peuvent être modifiés à tout moment, à la discrétion exclusive de Sughrue Mion, PLLC, et demande que toute correspondance relative à la demande soit adressée à l'adresse mentionnée sous le même Numéro USPTO.

POWER OF ATTORNEY: I hereby appoint all attorneys of SUGHRUE MION, PLLC who are listed under the USPTO Customer Number shown below as my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, recognizing that the specific attorneys listed under that Customer Number may be changed from time to time at the sole discretion of Sughrue Mion, PLLC, and request that all correspondence about the application be addressed to the address filed under the same USPTO Customer Number.



(23373)

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SUGHRUE MION, PLLC  
+1 (202) 293-7060

Direct Telephone Calls to: (name and telephone number)

SUGHRUE MION, PLLC  
+1 (202) 293-7060

<b>Nom complet de l'unique ou premier inventeur</b> <div style="text-align: right;"><i>1-00</i></div>	<b>Full name of sole or first inventor</b> <u>Alain EVRAD</u>
Signature de l'inventeur <span style="float: right;">Date</span>	Inventor's signature <span style="float: right;">Date</span> <div style="text-align: right;"><i>SEPT. 4, 2002</i></div>
Domicile	Residence <u>Le Havre Cedex FRANCE FRX.</u>
Nationalité	Citizenship French ✓
Adresse postale	Mailing Address c/o Sidel, Boîte Postale 204, F-76053 Le Havre Cedex FRANCE
<b>Nom complet du deuxième co-inventeur, le cas échéant</b>	<b>Full name of second joint inventor, if any</b>
Signature du deuxième inventeur <span style="float: right;">Date</span>	Second inventor's signature <span style="float: right;">Date</span>
Domicile	Residence
Nationalité	Citizenship
Adresse postale	Mailing Address